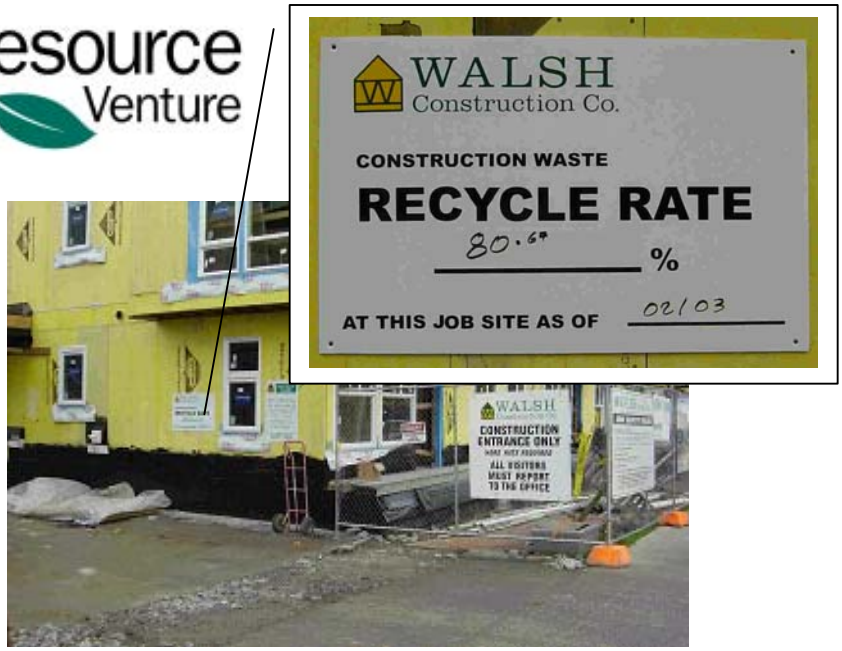
Resource Venture



Source-separated and Co-mingled Recycling Work Together

Project Description:
Nordheim Court is a University of Washington student housing complex consisting of 146 units, an exercise facility and a community room. The eight, three to five-story buildings are built over a post-tensioned concrete parking structure and total 227,430 square feet.

Challenge:
Although a fairly large project, it was located on a very tight urban site of 2.8 acres. There was only one access point and during extended periods the whole site was under construction. The project engineer, Tae-Hee Han, wanted to make recycling as cost-effective as possible, but the site conditions limited the amount of space and access for recycling containers.

Solution:
To make it work, the project engineer used a combination of source-separated and co-mingled containers in different sizes. In some phases, wood waste was collected separately in a 10- or 20-yard container. In other phases, wood waste was also co-mingled with metals in a 20-yard container; when lay down space was the tightest, a 10-yard co-mingled container was used. Switching from a 20 to a 10-yard co-mingled container provided more space and flexibility but required more frequent pick ups, sometimes twice a day. Cardboard waste was collected in a separate 10-yard container. Concrete was also collected separately. Walsh required the drywall contractor to collect the drywall waste separately and haul it to a recycler.

A crane positioned each container near the building where each waste was being generated. For example, on the same day, the co-mingled container was sited by Building 8 to collect a variety of

Program Highlights

Benefits:
- Avoided $7,406 in disposal costs through source separated recycling
- 81% recycling rate
- Recycled 658 tons

Materials Recycled:
- Cardboard: 2.3 tons
- Concrete: 159.8 tons
- Co-mingled wood and metal: 182.5 tons
- Drywall: 162.7 tons
- Wood waste: 150.8 tons

General Contractor:
Walsh Construction Co.

Architect:
Mithun

Owner:
University of Washington - Owner Lorig Associates - Developer/Manager

"Keeping multiple dedicated boxes for wood, cardboard and concrete on our very tight site all the time was a challenge, but the reduction in disposal costs paid for the cost of monitoring the boxes."

Tae-Hee Han
Project Engineer
Walsh Construction

recyclable finish materials from the finish work, and the wood-only container was placed near Building 6 to collect wood scrap from the wood frame panel installation. The crane moved full containers to the edge of the site for pickup. Concrete, which was too heavy to move in containers by crane, was hauled by bobcat to a container at the edge of the site. The site foreman inspected each container for contamination before it left the site.

Results:

Even with the challenges presented by the site, Walsh's experience with recycling was very positive. Through careful planning and using a mix of source-separated and co-mingled recycling, the project kept 81% of the waste materials out of the landfill. The Nordheim Court project received recognition from the City of Seattle and King County's Construction Works program for their outstanding efforts to recycle.

Lessons Learned:

In the Seattle area, source-separated recycling options for concrete, metals, cardboard, drywall and wood have been available for over a decade. Co-mingled recycling, which started in this area in 1998, has quickly become popular with contractors in just a few years because their crew can put wood, metal and cardboard in one container. Drywall and plastic film can also go in a co-mingled container if the receiving recycling processor recycles it.

Contractors find that co-mingled recycling is easier because it minimizes training, lessens monitoring requirements and reduces the number of containers on site. Compared to source separated recycling, the drawbacks of co-mingled recycling are the amount of material actually recycled can be less and it costs more per ton.

As an example, the chart below compares what it cost Walsh to source-separate wood and cardboard on the Nordheim Court project with what they would have spent had they put these materials into their co-mingled container. Walsh would have spent $7,406 more to recycle these materials using only co-mingled containers.

Construction Works

Recognizing jobsites that recycle and reduce waste

King County Department of Natural Resources and Parks

Resource Venture

Requirements

To be a recognized Construction Works member, your jobsite must:

- Recycle 60% of construction debris
- Implement 6 waste prevention strategies
- Use 6 recycled-content building materials
- Conduct 3 public education activities

Benefits

Builders are awarded an annual membership in Construction Works by specific jobsite. Your business will receive:

- Technical assistance to help you set up or increase recycling and waste-reduction
- Media recognition in local business publications
- Prominent placement of your company logo on the Construction Works website
- Hardhat decals for your crew and a Construction Works banner for your jobsite

Sign Up

For job sites in Seattle contact the Resource Venture at (206) 389-7304 or help@resourceventure.org.
For job sites in King County, outside the Seattle city limits, contact King County at (206) 296-8800 or greenworks.swd@metrokc.gov.

Material	Tons	Cost to co-mingle	Cost to source separate	Cost Difference
Wood	150.8	$36,828	$27,940	$8,888
Cardboard	2.3	$2,070	$1,200	$870
Labor costs to monitor containers (46 hours)		-	$2,352	($2,352)
Total Costs		$38,898	$31,492	
Cost savings of source separation over co-mingled recycling				**$7,406**